



Beyond direct personal relationships, electronic images and sound contribute most substantially to our experience of the world. Yet, we are nearly blind to the real, human implications of television in its many forms. Television which serves the worst in us has come rather easily. Hopefully, there is a new television which awaits us—one that maturely expresses our complex sense of things. Because images influence personal reality and social structure, the task of evolving this new television is an urgent and very practical matter.

# the national center for experiments in television

The Center is a group of artists, technicians and scholars engaged in developing tools and practices for creative television and studying the image-based experiences in man's individual and social life. Its formal activities—research, training, and the making of videotaped works—are inter-related in this ongoing search.



research

training

Working with the television monitor as the prime surface of aesthetic occurrence rather than as the conventional display of photographed reality, Center artists seek to understand and formalize principles of composition with electronic image and sound. Here broadcast television, and the theatrical, motion picture and journalistic histories which have comprised it, are set aside, and the medium's unique characteristics—electrical energy, two dimensionality in a fixed aspect ratio, time-dependence—are applied in studies of shape, movement, tension, volume, plasticity, texture, and duration.

To facilitate artists' dexterity with the new electronic implements, Center researchers design and construct original tools and equipment configurations. The Beck Direct Video Synthesizer, completed in 1971, generates shapes, colors and textures—many never before displayed on a television monitor—without the use of cameras or other optical devices. It is in use not only as a highly personal creative instrument, but also as a precise mechanism for psychological testing. The formations of video equipment at the Center are continually refined to provide optimum manageability for the artist; new versions of conventional broadcast studio gear are adapted and built to meet the demands of this work.

The Center has initiated a new area of study into electronic images and their relationship to man's individual and social life. Scientific aspects of this work are carried on jointly with professionals at other institutions. Unlike traditional broadcast research interested in measurements of audiences, the Center's concern is with the deeper meaning of the image-based experience. Monographs by Center staff members include reflections on art and politics, art and technology, and the philosophical and ethical aspects of public broadcasting. Current pilot studies are designed to better understand the psychological and cultural impact of images. The goal of this research is to explore visual and aural symbols as means of focusing political consciousness, the potential cross-cultural applications of visual symbols, the psychological experience of viewing television as it pertains to fundamental interpretations of reality, and aspects of the visual experience which affect public standards of objectivity and truth.

This fall the Center initiated a new public television training project based upon "across the board" service relationships with public television stations. The program's aim is to assist stations in those areas where the Center has particular expertise—experimental program design, graphics, specialized engineering techniques, and innovative relationships between the station, local artists, scholars and other resource persons.

KCTS, Seattle, and KPBS, San Diego, are the first two stations to participate in the new program. At KCTS the Center has helped launch an Artists Television Workshop with the support of the Seattle Arts Commission. Through exchanges of personnel, the Center will assist the station to produce a series of television pro-

grams utilizing the talents of local composers, dancers and visual artists. In San Diego, the Center is exploring new directions for local programming with the KPBS station staff. Additional training projects with other public television stations are being developed for 1973.

As television becomes increasingly available to groups and individuals not connected with established broadcasting institutions, the Center seeks to share its research beyond the public television community. Within the last several years the proliferation of low cost non-broadcast video gear, the emergence of UHF and cable outlets, and the possibilities inherent in home playback technology have drawn numbers of young people to videotape expression. A special three-year program begun in the fall of 1971 is establishing formal working and training relationships with students and faculty at several American universities to further the use of television as an artistic and educational tool. Through exchanges of personnel and videotapes, the Center will help initiate campus video workshops and assist students in moving systematically from basic aesthetic and attitudinal questions to the production of finished works.

Two such facilities are in operation at Southern Methodist University and The Rhode Island School of Design. In addition, The State University of New York at Buffalo has invited the Center to work with its own experimental video project.

#### VIDEO VOYAGE

We are warp minus ninety seconds and counting, 89, 88, 87, 86, 85, this is control we are go...this is systems we are go...this is audio and we are go ...64...63...62...we are go on all channels...one minute and counting...stand by to warp...check list?...go...48...47...crew check...answer go ...35...34...33...Howard?...Howard is go...Beck?...Beck is go...Jepson?...Jepson is go...Roarty?...Roarty is go...24...23...22...Hallock?...Hallock is go...Turner?...17...16...Turner?...15...answer Turner...14...13...12...Turner is go...minus nine, eight, seven, six, five, four, three, two, ONE...warp .....

Innerspace warp has launched a probe into the unknown...into videospace, to explore the vast uncharted reaches of electric dimensionality where few have ever traveled. The crew is part of the group of artists from the National Center for Experiments in Television who have been brought to San Francisco to explore the space behind the tube.

Stephen Beck, Aquarian (1950), is engineer and his direct video synthesizer like those of Eric Seigal and Nam June Paik is the control room for the voyage into video space. Beck's electronic karma began to manifest itself in the same way that Farnsworth's karma began to manifest itself...with a crystal radio. Tinkering with



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old radios and television sets, with amateur radio and various electronic hobbies, cultivated his electronic genius while his study of piano and french horn developed his musical understanding...and so on....

While attending the Electrical Engineering College of the University of Illinois in 1967/1970 he worked as a design assistant in the Electronic Music Studio at the University. During this time he also began to work with light as an expressive medium. Of particular significance were cathode ray tube graphics generated by exciting an oscilloscope with electronic sound signals, and volume color lighting.

During 1969-1970, in search of precise, electronic methods for controlling light expressively, he began to develop the first simple video synthesizer (#0), a performing instrument which appeared in several contexts, including concerts with composer Salvatore Martirano and his computer sound synthesizer, and a performance composition, *Prextyphia*.

During this year work commenced on Direct Video Synthesizer Number 1. Now a staff member of the National Center for Experiments in Television, Beck

continues to develop the video synthesizer, as well as to evolve designs for multiples of the synthesizer. He also utilizes this tool to realize compositions both for video tape recording (called videograms) and live video performance. His tape compositions have been shown many places in this country as well as in Montreal, Paris, Germany and Tokyo, and some of these works are on permanent collection at the Whitney Museum in New York.

#### VIDEOGRAM REPERTOIRE

<i>Point of Inflection</i>	1970
<i>Cosmic Portal</i>	1971
<i>Conception</i>	1972
<i>Electronic Notebook</i>	
<i>Videosynthesis</i>	1972
<i>Illuminated Music I</i>	1972
<i>Live performance broadcast over KQED San Francisco</i>	1972

In explaining his work in a white paper entitled *Direct Video: Electronic Artform for Color Television* (available from the National Center), Beck has made the following remarks.

Within many of mankind's tools are latent properties unobserved even by those whose intuition has led to the design of the tool. Television is no exception. As an electronic system its range and complexity are astonishing; unfortunately, far more so than its usual content indicates. Let us go one step further than television might seem to permit and remove the TV camera, replacing it with electronic circuits which can be manipulated to effect the formation of an image on a video monitor. This is direct video synthesis. It presents the artist, or videographer, with a new potential for using television as a medium of personal expression.

I was led to color television in the search for a precise means of expressively controlling light. Conventional computer graphics displays seemed costly and neglected a common piece of hardware—the color television set—as a display terminal; hence, the notion of a visual synthesizer as intermediary between control and display of an image.

It remained, however, to assess and understand the aesthetic properties of the television medium, and to formulate an aesthetic model upon which to base the construction of electronic image-forming modules which would constitute a synthesizer. With a voltage-controlled parameter approach the computer could be used to direct the image-producing modules. But more important, the videographer would have intimate control of the image through various physical—and also possibly biologically controlled—transducers which would develop control voltages.

Sense impressions of both my inner and outer world and their subsequent intellectualization led to the formation of an aesthetic model comprised of elements of form, motion, texture and color. (A mathematical development of form as points, lines, planes and perspective illusions serves as a preconditioner for electronically realizing these elements.) The temporal changing of geometrical relationships between elements of form gives rise to motion. Texture arises as brightness gradients over the elements of form, or a macroscopic aggregate of microforms, while the spectral distribution of reflected and radiant energy of forms evokes color from our senses.

As remarkable as it seems the incredible pretentious First National Video Tape Festival held at the Minneapolis College of Art during the fall selected only one San Francisco submission as worthy of recognition. The New York conceptual art oriented judges (Stoney, Youngblood, Rose) failed to award any West Coast artist more than passing notice. Whether it was by accident or by design, however, the judges elected to give honorable mention to one of the really significant works done in video during the last few years. Artists Don



Paul Kaufman, executive director/Brice Howard, director/Marvin Duckler, associate director/Kurt Machen, technical supervisor/Don Hallock, artist in residence/Willard Rosenquist, designer of light as a medium/William Roarty, artist in residence/Stephen Beck, circuit engineer and electronic videographer/Warner Jepson, composer/Rick Davis, circuit engineer/Ann Turner, reports editor/Mimi Scott, secretary.



Hallock and William Roarty joined together at the National Center to create *Untitled* which is undoubtedly a work of great historical magnitude and intense personal experience. This time painting takes place in the multidimensional videosphere where there are as yet no charts for navigation or stars to steer by. Hallock came to the National Center in 1971 from a long list of credits which include work as a director and producer, a carpenter, and a freelance film and tape cameraman. His experience as a freelance director in New York City brought him to the attention of Center Director Brice Howard who later brought Hallock to the Center as a production supervisor.

William Roarty, the Center's graphic artist and Hallock's partner in creating *Untitled* was graduated with a BA in Fine Art and taught in the East before joining the National Center. He did a stint at WVIA-TV in Scranton where he came to the attention of Howard who brought him to San Francisco as an intern in the National Center program. In addition to the work which Roarty and Hallock have done together, Hallock has created a number of other video time paintings which embrace the components of art skillfully transformed by the electron into flowing rhythmic movement, not just at the surface of the cathode ray tube, but within. His work is an astronomer's vision of the heavens, the tube is his telescope and through it one is able to leave the reality of spaceship earth and journey behind the looking glass to a land of gas clouds and exploding nebulae where the forces of electronic creation are held in balance by the artist's extensions of his mind.

Beck, Roarty and Hallock were joined at the National Center in their search for stellarvisions by William Gwin (Capricorn), 1/1/47. Gwin's resume reads, "1950 (age three) decided I was a writer...1966-7 decided I didn't want to write and became a sculptor. Met my wife. 1968-9 married my wife...painted...sold three paintings. B.A. in English Lit from Dartmouth." In 1969 Gwin became a general assistant at the National Center and in 1971 he became an artist in residence. He is now in NYC where he is said to be painting. Gwin during his residence at the Center wrote a definitive treatise on his work and experimentation entitled *Video Feedback: How To Make It: An Artist's Comments On Its Use: A Systems Approach*. Excerpts of his paper cannot convey the depth of the work entirely but are of great interest. To quote:

Video feedback is produced by aiming a camera at a monitor; the camera actually takes a picture of itself. The patterns thus engendered can be altered in several ways, by exerting various controls over the electronics, and by affecting the optical path of the picture/monitor loop.

Every slight movement affects the pattern. If the camera is moved haphazardly, it will flash by things that haven't had time to appear. Minuscule, gradual movements are absolutely necessary in order to begin to attain some kind of control over the pattern.

Changing the relationship between the camera and the monitor will alter the feedback. A camera standing upright will give a spiral pattern; when the camera is tilted slightly, a circle occurs; a camera placed at a 90° angle produces a rectangular shape. Work at the Center is done with small Sony cameras; broadcast studio cameras are obviously too heavy to juggle in this way, so under these circumstances tilt the monitor. After the camera/monitor relationship is set, the optical variables to manipulate are the f stop, zoom and focus of the camera's lens.

Combining elements—any kind of material—with feedback means introducing other images into the light pattern of the feedback loop, thereby changing the original feedback pattern. Using two cameras, this can be done with any sort of object, a person, or with reflective surfaces such as pieces of mirror mylar. In the latter case, feedback becomes the fixed element, with the camera set and unattended, and the changes are produced by moving lights on the mylar pieces and by moving the camera which is picking up the mylar reflections.

Use of feedback becomes more sophisticated as electronic variables are introduced into the loop—additional cameras, level control from a switching device, reversed polarity, color, "special effects" (particularly keying), and time delays.

Negative polarity allows the same possible variety of patterns that occur with positive feedback.

Feedback's primary drawback for the artist is that, because of the ease with which one can produce lovely patterns, it is tempting to get caught up in the process of discovering it to the exclusion of anything else. Several years ago, a poet visiting the Center observed: "feedback is a whore." Its prettiness can be so enticing that time and energy are destroyed without leading to any serious expression or work. In this situation, it's been fun, but may be almost counter-productive to art.

Making with feedback is just like making with any other artistic tool: it takes patience to learn the use and control of it. This is time consuming, since there are so many variables involved in each feedback pattern. Often it is difficult—or impossible—to return to a form once produced. It's advisable, therefore, to videotape an intricate kind of feedback; you may never find it again. These tapes can form an "image bank" of material to be used later by themselves, or to be fed into another combination of images.

People often deal with feedback as an interesting "effect." As an effect, it's not very interesting. What's important is what's done with it. In my own experience, I prefer carefully using the same feedback as a different element in many tapes to concentrating on finding a new feedback form for each new work. They young state of video art tends to emphasize the new. So often with feedback it's just new, but compositionally rather uninteresting.

Is feedback a whore? I'd ask, "Are you an artist?" And, "Is feedback something you can use to make art?" It can be anything you make it.

Videospace travel logs are available under the title *Electronic Notebooks*. The Center has completed the first two videotapes in a series of *Electronic Notebooks*: *Videosynthesis*, a descriptive portrait of the Center's Direct Video Synthesizer, and *Irving Bridge*, an original video composition by artist William Gwin.

This series of tapes will provide a continuing record of the artistic work, research, technical invention and general explorations into the making and experiencing of electronic images conducted at the Center. It will include a range of materials, from original video works to reports on research activities. Some of the tapes will deal with one subject matter, such as videosynthesis or color, while others will consist solely of a new work made by a member of the Center staff. As the series continues, the Center will broaden the service with reports on research being done elsewhere and video works by artists outside the Center.

The *Videosynthesis* tape reflects the artistic consciousness and technological reasoning of the Direct Video Synthesizer's creator, Stephen Beck. It includes an explanation of the device's operating principles as set forth in form (developed as points, lines, planes and perspective illusions), color, texture, and motion, as well as a new work by Beck entitled *Conception*. Music for *Videosynthesis* was composed by Warner Jepson, the Center's composer-in-residence.

*Irving Bridge* is a forty-minute video composition by painter William Gwin with sound score by Warner Jepson. Seattle public television station KCTS plans to give the premiere broadcast of the work this winter.

In addition to the *Notebooks* a log of videospace travels by individual artists contains the following visions of innerspace:

By Stephen Beck: *Conception; Videosynthesis* (music, W. Jepson); *Morphogenesis* (music, W. Jepson); *Illuminated Music*.

By Stephen Beck and Warner Jepson: *Comets*

By William Gwin: *Irving Bridge*

By Don Hallock: *Control Points; Winter Wisdom; Eggs?; 33; Ball; Kiss With No Up; Blind Shaman*.

By William Roarty: *Earth Poem; Passage*.

By William Roarty and Don Hallock: *Untitled; Chinese Wolf*.

By Willard Rosenquist: *Lightforms For An Electric Concert*.

#### RECENT RESEARCH TAPES

*Test Tape*: Synthesized graphics using scan converter and data tablet.

*Test Tape*: Synthesized sound generating video images with scan converter.

*Conversation With Rudolf Arnheim and Analysis Of CBS Evening News*.

*Information about the National Center for Experiments in Television which appears in this article has been supplied by Ann Turner, who is information director for the Center. For further information on the Center's activities, contact Ms. Turner. In addition to the white paper reports, the National Center publishes a newsletter. Write for the newsletter at the new address:*

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Bill Roarty and Don Hallock in the Experimental Studio.

